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85. Land tenure in the Pacific

A symposium of the Tenth Pacific Science Congress

convened by Edwin Doran, Jr.

Issued by

THE PACIFIC SCIENCE BOARD

National Academy of Sciences—National Research Council

Washington, D.C., U.S.A.

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LAND TENURE IN THE PACIFIC

A SYMPOSIUM OF THE TENTH PACIFIC SCIENCE CONGRESS

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Edwin Doran Jr.

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ACKNOWLEDGMENT

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Editorial Staff

F. R. Fosberg, editor
M. H. Sachet, assistant editor

Correspondence concerning the Atoll Research Bulletin should be addressed to the above

c/o Pacific Vegetation Project
National Research Council
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Washington 25, D. C., U. S. A.

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PREFACE

The Symposium on Land Tenure in the Pacific formed a portion of the program of the Tenth-Pacific Science Congress which met in Honolulu, Hawaii from August 21st to September 6th, 1961. The papers which follow are a verbatim transcript of those presented in this symposium on the morning of September 1st.

Persons taking part in the symposium are as listed:

Convener:

Edwin Doran Jr., Associate Professor of Geography
A. & M. College of Texas, College Station, Texas

Authors of papers:

Richard Turpin, Registrar of Cooperative Societies
Betio, Tarawa, Gilbert and Ellice Islands Colony
(paper presented in abstract only)

Maynard Neas, District Administrator
Ponape District, Trust Territory of the Pacific Islands

M. M. Townsend, District Commissioner
Malaita District, Auki, Malaita, B.S.I.P.

R. H. Regnault, Deputy Director
Lands and Survey Department, Suva, Fiji Islands

Q. F. Pilling, Assistant Secretary
Office of the Premier, Nuku'alofa, Tonga Islands

R. G. Cromcombe, Research Fellow
Research School of Pacific Studies, Australian National University, Canberra, A.C.T., Australia

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110°
120°
130°
140°
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160°
170°
180°
40°
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PHILIPPINE SEA
AUSTRALIA
CAROLINE ISLANDS
MARSHALL ISLANDS
MARIANAS
BISMARCK ARCHIPELAGO
NEW GUINEA
SOLOMON ISLANDS
CORAL SEA
ARAFURA SEA
BANDA SEA
JAVA SEA
CELEBES SEA
SULU SEA
SOUTH CHINA SEA
EAST CHINA SEA
YELLOW SEA
TIMOR SEA
SAWOE SEA
HONSHU
TAIWAN (FORMOSA)
BORNEO
CELEBES
NEW CALEDONIA
FIJI ISLANDS
Manila
Sydney
Perth
Darwin
Brisbane
Wellington
Auckland
Guam
Saipan
Palau Is
Truk Is
Yap
Nauru
Ocean
Tarawa
Majuro
Kwajalein
Eniwetok
Bikini
Rongelap
Ujelang
Ponape
Kusaie
Jaluit
Mili
Makin
Abaiang
Marakei
Abemama
Aranuka
Nonouti
Tabiteuea
Onotoa
Tamana
Arorae
Banaba
Gilbert Is
Ellice Is
Funafuti
Nukufetau
Nukulaelae
Nanumea
Nanumanga
Niutao
Vaitupu
Nui
Rotuma
Horne Is
Wallis
Futuna
Alofi
Niua Fo'ou
Tafahi
Vanua Levu
Viti Levu
Eastern Group
Kandavu
Lakeba
Fulaga
Ono I.
Vatoa
Tongatabu Gp
Haapai Gp
Vavau Gp
Niuafo'ou
Tonga Is
Samoa Is
Savaii
Upolu
Tutuila
Manua Is
Rose I.
Swains I.
Fanning Gp
Palmyra I.
Christmas
Kiritimati
Phoenix Is
McKean
Birnie
Gardner
Hull
Howland
Baker
Tokelau Is
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Raoul (Sunday)
Macauley
Curtis
L'Esperance Rk
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Lord Howe
Ashmore Reefs
Cartier
Hibernia Reefs
Scott Reef
Seringapatam Reef
Rowley Shoals
Barrow I.
Dampier Archipelago
Montebello Is
Barrow
NW. Cape
Exmouth G.
Shark B.
Dirk Hartog I.
Gladstone
Houtman Rks
Pelsaert Gp
Geraldton
Rottnest I.
Eyre
Eucla
Fowler B.
Denial B.
Ceduna
Streaky B.
P. Augusta
Trial R.
P. Macquarie
Ballina
Moreton I.
Gt. Sandy I.
Bundaberg
Harvey B.
Gladstone
Carnicarn Group
Cato
Broad Sd.
P. Denison
Repulse B.
Townsville
Great Barrier Reef
Marion Rf
Bampton Rf
Lihou Rf
Mellish Rf
Flinders Rf
Kenn Rf
Frederick Rf
Cardwell
Lucinda
Karumba
Normanton
Burketown
Borroloola
Roper R.
Groote Eylandt
Gulf of Carpentaria
Arnhem B.
Melville I.
Van Diemen G.
Cape Wessel
Cape Don
Port Darwin
Adelaide R.
Victoria R.
Cambridge G.
Collier B.
King Sd.
Broome
Roebuck B.
Beagle B.
Lacepede Is
Scott Reef
Ashmore Reefs
Timor
Roti
Sawu
Flores
Sumba
Soemba
Christmas
Java
Bali
Lombok
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Rinca
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Banda Sea
Ceram Sea
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Sulu Sea
Sulu Archipelago
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Palawan
Mindoro
Panay
Negros
Cebu
Samar
Leyte
Luzon
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Po. Condore
Mouths of Mekong R.
Po. Sapate
Vung Tau
Cape Padaran
Nhatrang B.
Qui Nhon Hbr.
Tonkin Pt
Hai-nan
Tao
Kan-en
Tonkin Gulf
Hue
Tourane
Batangan
Indo China
Saigon
Tien Tsin
Nanshan
Sin Cowe
Cavili
Balabac
Palawan
Cagayan Sulu
Cagayan
Parang
Pajada B.
C. San Agustin
Palmas
Darvel B.
Sibuko B.
Tg. Baram
N. Natoena
Gt. Natoena
S. Natoena
Tg. Sirik
St. Petnia
Tg. Datu
Pontianak
Tg. Mangkalihat
Pejantan
Borneo
Karimata Is
Bangka
Billiton
Tg. Seladan
Karimoensiawa
Bawean
Madoera
Rembang
Makassar
Bantam
Batavia
Sourabaya
Pasuruan
Probolinggo
Bali
Lombok
Sumbawa
Flores
Sumba
Soemba
Timor
Roti
Sawu
Ombai
Wetar
Babar
Tanimbar
Aroe
Kai
Banda
Tidore
Ternate
Gilolo
Halmahera
Morotai
Talaud
Sangihe
Tobi
Helen Rf
Mapia
Ajoe
Waigeo
Misool
Salwatti
Jobi
Schouten
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Geelvink Bay
Hollandia
Dutch New Guinea
Papua
Fly R.
Merauke
Torres Str.
Prince Charlotte B.
Cape York
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Burketown
Borroloola
Roper R.
Groote Eylandt
Arnhem B.
Melville I.
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Cape Don
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Mellish Rf
Flinders Rf
Kenn Rf
Frederick Rf
Cardwell
Lucinda
Karumba
Normanton
Burketown
Borroloola
Roper R.
Groote Eylandt
Gulf of Carpentaria

160° 150° 140° 130° 120° 110° 100° 90°
H P A C I F I C O C E A N
U N I T E D S T A T E S
N I S L A N D S
Mendocino
Farallon Is
San Francisco
Santa Cruz
Monterey
Cayucos
Pt. Arguello
Pt. Conception
Los Angeles
Sta. Rosa
San Nicolas
Sta. Catalina
Cortez Bk
San Clemente
San Diego
Todos Santos B
Guadalupe
Salvation Vizcaino B
BAJA CALIFORNIA
GOLFO DE CALIFORNIA
Tiburon I.
Guaymas
P. Yavaros
B. Topolobampo
Altata
La Paz
Ceralbo
Bahia Magdalena
Cedros
Pts. Eugenia
Colorado R.
George's B.
Ballenas B
Alijos Rks
C. San Lucas
Mazatlan
MEXICO
Isabel
Las Tres Marias
San Blas
C. Corrientes
B. Chamela
Manzanillo
Revillagigedo Is
Roca Partida
Clarion
S. Benedicto
Socorro
Clipperton
Gardner Pinnacles
French Frigate Shl
Necker
Nihoa
Kauai
Oahu
Niihau
Kaula
Honolulu
Molokai
Maui
Lanai
Hilo B
Hawaii
Kawaihae
Kalae
Kingman Rf
Palmyra
Washington
Fanning
Christmas
Jarvis
Malden
Starbuck
Penrhyn
Rakahanga
Manihiki
Vostok
Caroline Is
Danger Is
Nassau
Flint
Suwarov Is
MARQUESAS IS
Eiao
Nuku Hiva
Ua Huka
Ha Pou
Hiva Oa
Fatu Hiva
TUAMOTU ARCHIPELAGO
Disappointment Is
Pukapuka
Matahiva
Takaroa
Takume
Angatau
Fangahina
Rakaneka
Tatakoto
Amanu
Reao
Nukutavake
Ahunui
Vanavana
Turvia
Actaeon Gp
Maruhea
Maria
Fangatauta
Morane
Mangareva
Timoe
Duke of Gloucester Is
Temoe
Henderson
Manuhangi
Oeno
Elisabeth
Ducie
Pitcairn
SOCIETY ISLANDS
Bellingshausen
Fenua Ura
Mopelia
Maupiti
Raiatea
Tahaa
Tubuai Mani
Tahiti
Eimeo
Matahiva
Makatea
Rangiroa
Takaroa
Tikei
Takume
Palmerston Is
Aitutaki
Hervey Is
Mitiaro
Mauke
COOK ISLANDS
Rarotonga
Mangaia
Maria Is
TUBUAI OR AUSTRAL ISLANDS
Rimatara
Ruruhu
Tubuai
Raivavae
Rapa
Ilots de Bass
Easter I.
(Rapa Nui)
Sala y Gomez
Mississippi R.
P. Arthur
New Orleans
Mobile
Galveston
C. San Blas
Corpus Christi
Padre I
Rio Grande
GULF OF MEXICO
Matamoros
Tampico
C. Rojo
Tuxpam
Triangles
Cayo Arenas
Campeche Bank
GOLFO DE CAMPECHE
Cosumel
Campeche
YUCATAN
Veracruz
Alvarado
R. Petatlan
Acapulco
Costasacualcos
(P. Mexico)
Salina Cruz
Tehuantepec
B. Dulce
G. de Tehuantepec
Honduras
Bay Is
Tela
HONDURAS
GUATEMALA
EL SALVADOR
C. Gracias a Dios
Sacapulco
S. Benito
Champerico
San Jose
Acajutla
La Libertad
NICARAGUA
Cocos
Wenman
Culpepper
ARCHO. DE COLON
(Galapagos Is.)
Pinta
Genovesa
Fernandina
Isabela
Santa Cruz
San Cristobal
Sta. Maria
Española
San Juan del Sur
Golfo del Papagayo
C. Nicoya

INTRODUCTION

Edwin Doran Jr.

Purpose and Organization

The objectives of this symposium are not so grandiose as the brief title might imply. A meeting of size perhaps comparable to the Tenth Congress would be required to treat in detail with the vast scope of land tenure problems viewed in time and space for the entire Pacific Oceanarea (Fig. 1). Our much more limited purposes are twofold, to examine a few current problems of land ownership in several well-dispersed island groups and to illustrate the utility of a slightly different cross-disciplinary approach to such problems than those of former Congresses.

The significance of problems of land tenure everywhere need not be emphasized to this audience. The intimate connections of man with the earth which provides his needs and the ever-increasing numbers of humans competing in a finite area which decreases in quality as they misuse it - it is indeed ironic that these are the commonplaces of today.

Since land tenure problems are of magnitude and are ubiquitous it was felt that comparative studies from several parts of the Pacific might be useful. Westernized areas such as Hawaii, New Zealand, and Australia were excluded from comsideration, and an attempt made to obtain contributions from the Gilbert and Marshall Islands in Micronesia, from the Solomon and Fiji Islands in Melanesia, and from the Cook Islands in Polynesia.

It is recognized commonly that problems of land tenure are cross-disciplinary in nature, and that no one person can have a background

completely adequate for their solution. The single individual who often is forced to act on problems, despite his awareness of shortcomings in available information, is the administrator. It was thought that it might be stimulating to present problems as seen through the eyes of those in most immediate contact with them, hence four papers this morning are presented by administrators.

In an area of relatively primitive people, whose cultures may be basically different from those of western civilization, it is imperative that the studies and advice of anthropologists be considered in attempting solutions to problems of land tenure. We are fortunate in having on the program a person who has studied such problems intensively in several Polynesian groups and can illuminate them from an anthropologic viewpoint.

Finally, the organization of this program and the introductory statements on each area may be taken as a possible illustration of the integrative facility and insight which geography can contribute to problems of land tenure.

Administrative Details[1]

Certain administrative matters may be mentioned at this point. Several of the maps used as illustrations are taken from various United States or British governmental sources. Those illustrating relief and rainfall of Viti Levu are taken from Derrick's Geographical Handbook of the Fiji Islands. The photographs are mine except for aerials of Rarotonga and Tongareva taken by the U. S. Navy.

Unfortunately, only two of the six persons presenting articles are with us in person this morning. Due to travel problems Messrs.

1/ This section is appropriate to the verbal presentation only.

Pilling, Regnault, Townsend, and Turpin are unable to attend the meeting and their papers will be read by proxies whom I shall introduce at the appropriate time.

Finally, since it is intended that the symposium have a unitary character will you please reserve your questions until all the papers have been presented?

GILBERT ISLANDS LANDSCAPE

Edwin Doran Jr.

The sixteen atolls and islands which comprise the Gilbert Islands are strewn across the equator, not far west of the Date Line, for more than 400 miles from southeast to northwest (Fig. 2). An uneven distribution into such clusters as the Abemama-Kuria-Aranuka group, separated by 40 or 50 nautical miles of open ocean from adjacent atolls, has been of some importance historically and in the development of present land-holding patterns.

The islands are typical atolls, for the most part, with a central lagoon, elongated from southeast to northwest, and a surrounding chaplet of low-lying coral islands barely protruding from the sea (Fig.3). Individual islets are miles long but only furlongs-wide, and a few minutes' walk takes one from the ocean shore, where waves breaking on the fringing reef send up showers of spume, across to the quiet lagoon beach with its gently lapping wavelets. Variations in land surface along the long axis of islets are slight indeed. The most pronounced occur at breaks between islets where tidal channels connect ocean and lagoon or at lower land areas where storm washovers have reduced soil and vegetation to meager quality. By contrast, and in much shorter distance, the changes across widths of islands are marked and significant, in terms of exposure to wind and salt spray, in vegetation, in launching sites for canoes, and many others. The natural environment suggests strongly to man that the advisable manner of dividing up his lands is in cross-island units, and this usually he has done.

In most respects the Gilberts are favored with a pleasant, tropical maritime climate. Temperatures are equable and almost never vary more than ten degrees from an annual mean of about 82 degrees. The hottest

mid-day usually is moderated by strong breezes off the ocean, and winds of typhoon velocity are nearly unknown. By contrast the sparsity and variability of rainfall stand out with especial clarity. The westward extension of the dry equatorial tongue crosses the southern Gilberts, hence annual rainfall in this part of the chain is as low as 41 inches on Tabiteuea. Increases to over 50 inches at Arorae and to well over 100 inches at Butaritari occur transitionally to south and north. Even these figures, however, are insufficient to describe a variable climate in which annual rainfalls fluctuate markedly, as the recorded range from 15 inches to 115 inches at Tarawa examplifies. Since an annual rainfall of about 32 inches divides humid from semi-arid climates under these temperature conditions it is evident that the central Gilberts are not far removed from drought at best and that most of the chain is likely to suffer from time to time.

Under the edaphic and rainfall conditions which prevail vegetation inevitably must be sparse. Coconut trees are the dominant cover and thrive except in drier years, pandanus is hardy and a perennial food source, and babai, the coarse taro-like root, provides starch. An impoverished flora, with such species as Scaevola, Pemphis, and Rhizophora, fulfills most basic needs for fuel and construction materials, although formerly canoe building often had to await discovery of a properly large drift log.

According to recent estimates the population of the Gilbert Islands is approximately 33,000, equivalent to a population density of 288 persons per square mile. Since this is one of the greatest densities in the Pacific and occurs on islands sparse in rainfall and resources it is evident that problems of land tenure here are inevitably considerable.
How close this density approaches the maximum number that could be

supported under an economy of subsistence agriculture and fishing is, of course, a critical question to which no good answer can be given. Although a density of 520 per square mile has been suggested as feasible Maude questions such a concentration. Some insight is provided by the crude population estimate of 40,000 persons able to occupy the Gilberts at the time of the Wilkes Expedition of 1841.

Another approach, based on the idea that rainfall is a limiting factor on food production and hence on population is to compute a Kendall's rank correlation coefficient relating rainfall and population density of the several islands (Table 1). One might suspect that islands with heavier rainfall could support denser populations and that there should be a correlation between the two factors. The coefficient which emerges, 0.457, lies just within the limits of chance occurrence, and the suspected relationship is not firmly established. 1/ From this one could argue that populations as yet have not reached the maximum imposed by available rainfall but may well be approaching this limit.

1/ A correlation coefficient larger than 0.475 would be significant at the .05 level.

TABLE 1

GILBERT ISLANDS: POPULATION DENSITY-RAINFALL RANK CORRELATION

Island (or atoll)	Popul.	Area	Density	Rank	Rainfall	Rank
Makin	1130	2.8	405	4	100	2
Butaritari	2118	4.5	470	2	122	1
Marakei	1790	3.9	460	3	71	4
Abaiang	3234	11.0	295	7	74	3
Tarawa	7125	7.7	925	Omitted	64	Omitted
Maiana	1359	10.4	130	13	57	5
Abemama	1341	6.6	205	11	53	6
Kuria	541	5.0	108	14	48	10
Aranuka	571	6.0	95	15	49	9
Nonouti	2143	9.8	215	10	43	13
Tabiteuea	3266	19.0	172	12	41	15
Beru	1968	8.1	245	9	45	12
Onotoa	1542	5.2	305	6	46	11
Nikunau	2011	7.0	290	8	42	14
Tamana	1142	2.0	515	1	50	8
Arorae	1551	5.0	310	5	52	7
Total	32832	114.0			957	
Average			288		60	
Cases				15		15

Rank Correlation Coefficient = 0.457

173°
174°
175°
176°
177°
3°
2°
1°
0°
Makin Meang
Butaritari
Marakei
Abaiang
Tarawa
Maiana
Abemama
Kuria
Aranuka
Nonouti
Tabiteuea
Beru
Nukunau
Onotoa
GILBERT ISLANDS
Tamana
Arorae

173°00'
173°10'
1°35'
1°30'
1°25'
1°20'
BETIO
BAIRIKI
TARAWA
173°00'
173°10'

LAND TENURE PROBLEMS, GILBERT AND ELLICE ISLANDS

Richard Turpin

(Due to communications difficulties only an abstract can be presented.)

Location, area, small scattered atolls over large area, diversity of rainfall and population density.

Before European contact land in Gilberts generally individually owned but restrictive customary rules governed disposal. On islands governed by High Chiefs land was vested in High Chief who distributed rights in lands.

In the Ellice Islands lands also vested in High Chiefs who disposed of rights to followers.

Land itself of little economic value until middle nineteenth century when cocoanut-oil first exported - nevertheless had social values - pits for babai and taro of greater food value.

After contact land had greater value as coconut-oil or copra exportable - islands fortunate that little land alienated.

Nevertheless increased value plus increasing population caused increased number disputes.

In early years Government, inadequate machinery for settlement disputes and registration but remedied after 1946.

Continuation of modified customary tenure causes fragmentation and subdivision of lands - no unused lands available.

Land hunger and surfeit exist on same islands - maldistribution.

Resistance to change stems from natural inertia plus fear of landlessness which could result in loss of security in old age or sickness and lack of alternative means of livelihood.

Security of tenure and machinery for settlement of disputes and for registration now exist.

Problems are maldistribution, fragmentation, sub-division.

Legislation now enacted enables neglected lands to be purchased for land hungry.

Customary tenure codes are not unchangeable and future more educated generations may wish to adopt less restricted form ownership.

Emigration has been tried on small scale and is possibility for future.

Variations of problems on some islands.

MARSHALL ISLANDS LANDSCAPE

Edwin Doran Jr.

The diagonal trend of the Gilberts is extended northwestward by the Marshall Islands (Fig. 4). At first sight, and in essence correctly enough, one would consider the two groups as conforming to much the same pattern. Each has a linear arrangement of tiny atolls sprinkled across vast ocean space, and Majuro Atoll appears rather similar to Tarawa (Fig. 5). In both groups islets of coral debris surround extensive lagoons, vegetation is relatively sparse although varying in profusion with the amount of rainfall, and small area combined with large ocean distances combine to form major difficulties for man's occupation.

A closer examination, however, reveals significant differences in physiognomy between the two groups of islands. If the total land area of inhabited islands (atolls) within each group is divided by the number of such islands it develops that the average Gilbert island(atoll) has an area of 7.1 square statute miles whereas the average Marshall island (atoll) has an area of only 2.65 square miles. On the average, then, each Gilbert island (atoll) is 2.7 times as large as each Marshall island (atoll). If the same procedure is used for the area of lagoons, however, precisely the opposite develops; the average Marshallese lagoon on an inhabited atoll is 181 square miles, the Gilbertese lagoon is 67 square miles, and the relation is again 2.7 but in favor of the Marshallese lagoon (Table 2). Curiously enough an approximately similar ratio obtains for lagoon depth; the average lagoon in the Marshalls is 137 feet deep or 2.4 times as deep as the 57-foot average for the Gilberts. Again the ratio

appears, but in opposite form, in reef width; the 4850-foot Gilbertese reef is on the average 3.2 times as wide as the 1500-foot Marshallese reef. Larger lagoons imply longer reefs, evidently, and the total reef area of the Marshalls is estimated at 312 square miles as compared to a total of 212 square miles in the Gilberts. Greater length more than compensates for lesser width (Table 3).

Turning now to population we note that somewhat more than twice as great a Gilbertese population, as compared to the Marshalls, is concentrated on somewhat less than twice as much land area, producing a density for the former of 288 persons per square mile, for the latter 235 per square mile. The greater population, however, is concentrated on fewer islands so that the average population per island is 2050 versus 620 or 3.3 times as large.

Let us now examine a few of the interrelationships significant to problems of land tenure which emerge from these statistics.

Since the average island (atoll) in the Gilberts is three times as large as in the Marshalls one can deduce, in the absence of accurate measurements, that in general the ground water supply must be better in the former. This follows from the known character of atoll freshwater lanses, which, in size and quality, are a function of individual islet size. The utility of vegetation and land and probably soils as well would appear to be greater in the Gilberts because the peripheral fringe of Scaevola and other salt-tolerant but relatively useless forms is an appreciably smaller proportion of the total vegetated area. And since the population per island (atoll) averages three times that in the Marshalls there would appear to be inherent economies of scale accruing to the Gilberts. Maintenance

TABLE 2

Island Group	Inhab. Area*	No. Inhab. Islands (atolls)	Ave. Area*	Ratio
Gilbert Is.	114.0	16	7.10	2.7:1
Marshall Is.	61.0	23	2.65	

Island Group	Lagoon Area*	Inhabited Atolls (s.str.)	Ave. Area*	Ratio
Gilbert Is.	738	11	67.0	1:2.7
Marshall Is.	3624	20	181.0	

* Area in square statute miles

TABLE 3

Island Group	Ave. Lagoon Depth, ft.*		Ave. Reef Width, ft.*		Total Reef Area, sq. mi.**
Gilbert Is.	57	1:2.4	4850	3.2:1	212
Marshall Is.	137		1500		312

Island Group	Population	Inhab. Islands (Atolls) Number	Area	Popul. per Island (atoll)	Popul. Density
Gilbert Is.	32,832	16	114.0	2050	288
Marshall Is.	14,290	23	61.0	620	235

* Data from Nugent, L. E. Jr. (1946) Coral Reefs in the Gilbert, Marshall, and Caroline Islands. Bull. Geol. Soc. Amer. 57:735-780. Nugent's data for individual atolls have been averaged.

** Data from Nugent, op.cit. Figures here are summations of his atoll reef lengths multiplied by average reef widths minus atoll land areas. The potential errors in such extrapolations are evident.

of schools, hospitals, and trading centers is more efficient with larger population, collection of the copra harvest for overseas shipment is facilitated, and control over land use should also be more easily accomplished.

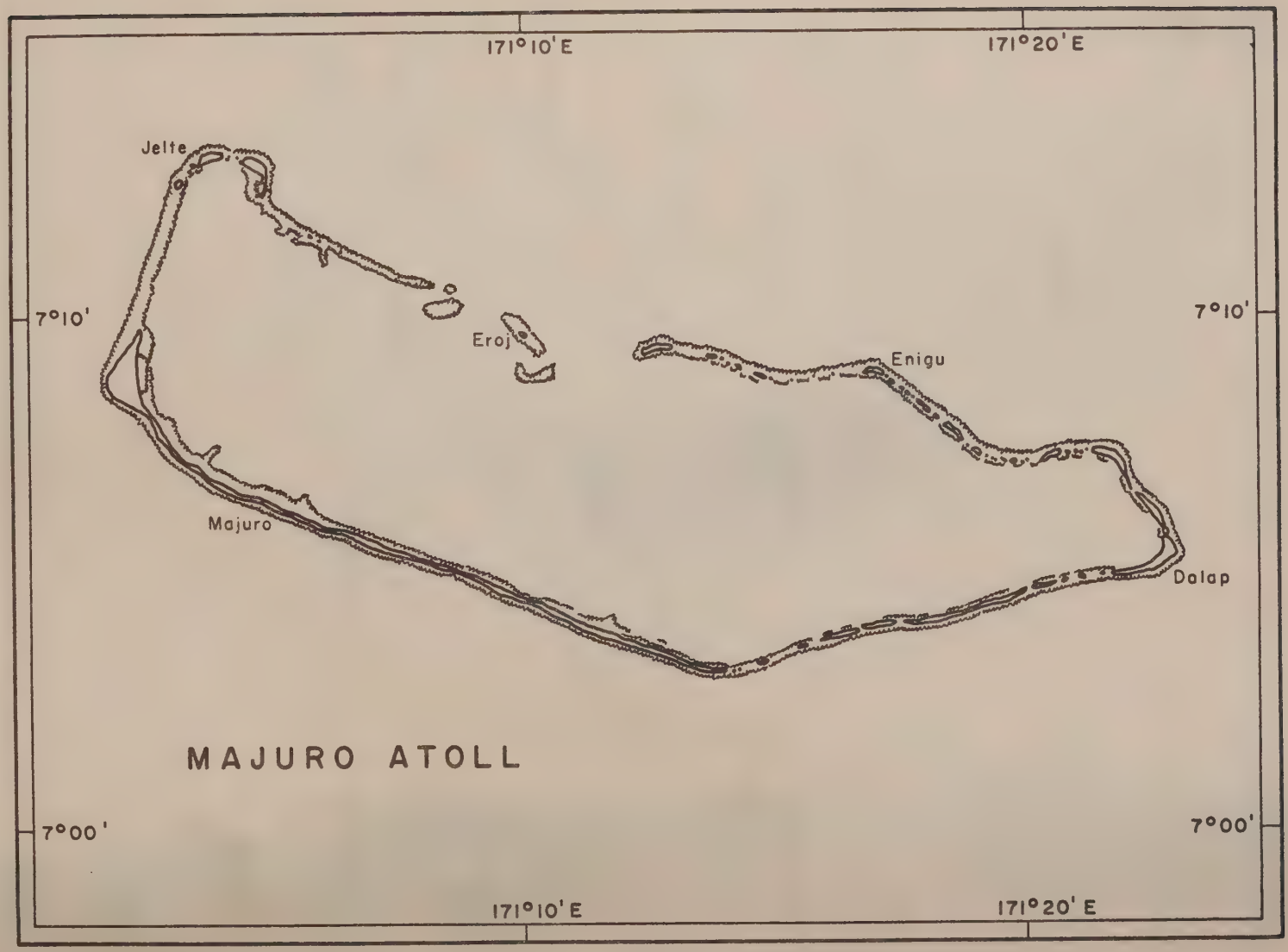
In maritime affairs, however, the advantage is reversed. Most Marshallese atolls have large lagoons which are essentially reef-free and accessible from the ocean through deep passes, whereas the coral-choked lagoons and paucity of good harbors in the Gilberts are conspicuous disadvantages. Not only is this the situation today, but it must have been true also during indigenous times when large canoes had much the same requirements as modern trading schooners. The northwesterly orientation of the two groups also was of significance during the days of sailing canoes and still is where sails are used. The Marshalls, north of the equator and with northeasterly winds, are ideally oriented for sailing up or down an island chain, in either case with the wind on the beam in a position not requiring tacking. Good harbors and ease of communications along the two Marshallese chains may well have had much to do with their pre-European centralized chiefdoms. The Gilberts, with dominant southeasterly breezes, provided easy sailing toward the northwest but a wet and unpleasant beat back in the other direction. This may have had something to do with its lack of centralized control except in small contiguous groups. These environmental relations must not be overemphasized, but they certainly have some effect.

Catala's study in the Gilbert Islands has emphasized the importance of reef areas in evaluation of atoll resources. Formerly control over reefs was a chiefly prerogative; with the Western concept of

government ownership of land below the high water line such areas now form unsolved problems of land ownership and are little understood from the viewpoint of quantitative contribution to food supply. All would agree that food collected on the reef is significant in atoll diets; few would suggest that this source is more important than equivalent areas of land. If a unit area of reef provides one-tenth as much food as a similar area on land one might argue that the effective land area has been increased by one-tenth of the total reef area. If we apply this "reef utility factor," as it might be called, to the reef areas of both the Gilberts and Marshalls, multiplying the respective reef areas by it and adding the resultant useful area to the total land area, then population densities for the islands are reduced markedly. The Gilberts drop from 288 per square mile to 243, the Marshalls from 235 down to 156.

This is largely an exercise in speculation, but it emphasizes the necessity for obtaining accurate, quantitative data on the actual utility of reefs in order to properly evaluate atoll population densities. Proper allocation and conservation of reef resources evidently is a significant aspect of land tenure problems on atolls.

164°
168°
172°
16°N
12°N
8°N
4°N
Taongi
Bikar
Eniwetok
Bikini
Rongelap
Rongerik
Ailinginae
Utirik
Taka
Ailuk
Mejit
Likiep
Jemo
Wotho
Kwajalein
Wotje
Ujae
Lae
Erikub
Maloelap
Lib
Namu
Aur
Ailinglapalap
Majuro
Arno
MARSHALL ISLANDS
Mille
Jaluit
Kili
Namorik
Kusaie
Ebon


171°10' E
171°20' E
Jelte
7°10'
Eroj
Enigu
Majuro
Dalap
MAJURO ATOLL
7°00'
171°10' E
171°20' E

LAND OWNERSHIP PATTERNS IN THE MARSHALL ISLANDS

Maynard Neas

The Marshall Islands begin approximately 2,000 miles southwest of Hawaii. They consist of 29 atolls and 5 separate islands, inhabited by 15,000 Marshallese people, and constitute an administrative district of the United States Trust Territory of the Pacific Islands. Administration of the Marshalls is in accordance with a trusteeship agreement between the United States and the United Nations. These low coral formations, no point over 25 feet above high water, contain only 70 square miles of dry land. There is 700 miles of ocean between Narikrik Atoll in the southeast corner of the district and Ujelang Atoll in the northwest corner. The Marshalls are in the northeast trades of the Central Pacific between 4 and 15 degrees North Latitude and between 162 and 172 degrees East Longitude. Temperatures average 80 degrees F. Rainfall varies from 160 inches in the southern regions to less than 50 inches in the northern sections.

It is quite probable that Marshallese land tenure is very much today as it was 1,000 years ago. Their land tenure is based on a matrilineal society. All children inherit lands from their mothers. There cannot be any illegitimate children. There are no landless people and their land tenure pattern is the most important single factor of their lives. All children become members of their mother's clan. However, the clan is not a factor in the land ownership pattern. A paramount chief in the Marshalls is not a clan chief. His powers are associated with specific land parcels and the people that live on them.

A land parcel is controlled by a paramount chief, a family head and an undetermined number of commoners, or workers as they are sometimes

called. Each land parcel has a name and a history. The relative interests of various owners are seldom determined exactly. Formerly, powers of a paramount chief were absolute. The chiefly powers started to decline with the establishment of the German protectorate. Corresponding with the decline of chiefly powers, the commoners have gained in power and status.

Arguments over land provide the Marshallese with a form of entertainment and excitement in an area where a great premium is placed on anything that will break the dull monotony of isolated life. Land is so scarce it has acquired more than use values. The ocean and lagoons provide most of the food for the 15,000 Marshallese. Land is the foundation of prestige and social position. It is never bought or sold. It may become the subject of a gift, even to total outsiders, but its value is completely beyond the command of money. It is something to fight and die for.

Under the present Trusteeship civil war is prohibited and acquisition of land by foreigners is impossible. Land is something to acquire by intrigue, marriage, magic and sharp legal action in addition to acquisition by normal inheritance. There is no serious dispute in the district without foundation in a land dispute.

Marshallese land parcels are usually of three to four acres each. The tendency is to leave the parcels intact. Any number of commoners may hold rights in a given parcel but only one each of the higher levels may exist at any one time in the same parcel. The commoners work under general direction of the family head, who in turn answers to the chief.

There is only one cash crop - copra. Division of cash proceeds varies

from place to place from time to time. Duties and responsibilities on a particular land parcel will show the general picture. Copra was selling at 4½¢ per pound. The paramount chief received ½¢ per pound, the family head got ½¢ and the worker kept the remainder, or 3½¢. Generally, the chief's and family head's shares do not vary. As copra prices rise or fall, the worker gets more or less. The commoner must tend the land. He must keep underbrush down and maintain the land in condition to produce food and copra. The commoner must furnish his own knives and other simple tools. He must make and market the copra and remit shares to chief and family head. Any of the three levels may live on the land and take food from it but none has to maintain a residence on it. The commoner plants new trees and other food plants. Any major change in planting arrangement must be agreed to by family head and commoner. The commoner gives first fruits to the family head who in turn delivers these to the chief. The question of who is the chief for this parcel is in violent dispute. The family head personally recognizes a different chief than the one recognized by the workers and the High Court of the Trust Territory. This case was in dispute in the civil war that was raging in Majuro Atoll at the time the Germans stopped all local armed conflicts. It has been in dispute for over a hundred years and the wrangle may continue for another hundred. The commoner may use as many coconuts and other food products from the land as he needs for home use without any accounting. In case the worker doesn't do his work, the family head will step in and see that it is done and take the commoner's copra share. During the Japanese administration the division of copra proceeds was fixed by the Government. Now it is left to the people concerned.

Absolute chaos reigns today with respect to actual land ownership and relative interests of owners. They can determine three or four principal persons who hold rights on a given parcel with some certainty. But the number of people with some shade of interest in many parcels is indeterminable. Contact with 20th century civilization has brought many, many problems. For example, the Rongelap people were moved from their home atoll in March, 1954 after sustaining serious burns from nuclear fallout originating at a hydrogen bomb test at nearby Bikini. There were 82 pople on Rongelap at the time of the fallout. All were moved to Majuro Atoll where they remained for three years while their home atoll lost its deadly nuclear energy. New homes, at no cost to them, and free food helped approximately 200 additional people discover they were of the Rongelap land-holding lines and therefore eligible to share in the handouts of the United States Atomic Energy Commission.

In an area of dedicated travellers like the Marshallese, together with relatively loose sex customs, it is quite probable that reasonably strong proof could be brought to show any given Marshallese as having some degree of kinship to a substantial percentage of the entire population. When it is necessary to determine legal ownership of land, the Trust Territory Code requires the case to go before the High Court of the Territory. There is a special rule of the High Court pertaining to land cases in the Marshalls, together with four key decisions handed down by the Court during the past 10 years. The special rule requires the plaintiff to name the person he recognizes as his paramount chief on the land in question; what action the paramount chief has taken on the matter and what action the plaintiff

has taken to obtain a determination of his rights through traditional Marshallese channels. The substitution of open court for the arbitrary decisions of past German and Japanese administrations and the civil wars of pre-contact days, has brought considerable confusion. Why go to court if you don't get what you want? Any loser of a court case is apt to feel that he should be able to continue to present the matter to the court from time to time until he does get the case decided the right way. Obviously, his way.

The first key case established the principle that land matters officially and clearly decided by the German and Japanese administrations would be given full legal standing. Various levels of ownership were recognized. The Court ruled as follows:

"The present Marshallese system of land ownership is basically feudalistic. So far as we can determine, there is no helpful general analogy between the Marshallese system of land ownership and anything common in English-American history since the days of feudalism. All the different levels of owners have rights which the Courts will recognize, but they also have obligations to each other which severely limit their control over the land. There is duty of loyalty all the way up the line from commoner to head of family to little chief to paramount chief. A correspomding duty of protection of the welfare of subordinates running (sic) down the line and a strong obligation of cooperation running both ways. Thus, the rights involved are a combination of strictly private or property rights and rights or powers somewhat like those going with a public office."

The second key case contained the elements necessary for the Courts to establish limitations on the powers of paramount chiefs. Limine,

the plaintiff, was properly recognized and established as the family head of a lineage by his paramount chief. He committed some personal acts the chief did not like. However, his actions as family head were satisfactory to all concerned. No complaint was entered with respect to these actions. Nevertheless the defendant was named as family head by the paramount chief in place of Limine. The High Court ruled that there was no good reason for the change and re-established Limine as family head. The court found the paramount chief had acted in complete disregard to the rights which the chief himself had established. This the Court ruled "...is considered both unreasonable and contrary to the Marshallese customary law."

The third case involved the legal limitations of a will. The Court ruled as follows: "Under Marshallese customary law the approval of the paramount chief, or those entitled to exercise the paramount chief's powers, is necessary to make a will of rights effective and is one of the most important things about it." The paramount chief has power to determine whether,under all the circumstances, the necessary people have been consulted about a will or have consented to it. The Court ruled that the paramount chief may approve a will in part and disapprove another part. His decision, if properly made, will be binding no matter how clear it is the person making the will desired something entirely different.

The fourth case established the right of paramount chiefs to take away rights on lands under them when there is good cause. A family head, with the approval of his paramount chief, withdrew from his position as family head with respect to a certain land parcel. He named a daughter of his brother to succeed him as family head prior to

his death and to remain in the position after his demise. A certain lineage was given the commoner rights on the land parcel with the stipulation that the commoners would take care of the family head. This arrangement worked well for over 10 years. Eventually, neither side would cooperate or work together. The paramount chief took away all of the rights of both feuding sides in the given land parcel and gave them to other people. The Court ruled that this was entirely proper and legal. The various people holding the land rights reached the point where they were bickering and were not working the land properly. Therefore, the Court concluded, the paramount chief was well within his rights to bring about a change for the improvement of conditions by taking away land rights from one and giving them to another.

Now, what lies ahead? With modern medical care the population is increasing so fast it is estimated there will be 30,000 Marshallese, or double the present number, by 1970. Close contacts with thousands of Americans since World War II in the nuclear testing areas of Eniwetok and Bikini and with personnel at Kwajalein Island activities have whetted Marshallese appetites for much more than fish and coconuts. How can advanced 20th century operations be conducted on land that is under a stone age tenure system and where the smallest dispute gets into the raging storms of inter-national politics at the United Nations? Time alone will tell.

MALAITA ISLAND LANDSCAPE

Edwin Doran Jr.

The contrast betwen the low atolls of Micronesia and the rugged mountainous islands of the Solomons is immense (Fig.6). Malaita is 120 miles long by over 20 miles in breadth, and elevations of two to four thousand feet are typical along the crests of its northwest-southeast trending ridges (Fig.8). Downfolds of the rocks are reflected in somewhat lower elevations in the Fauambu and Takataka Synclines, part of the latter forming Maramasike Passage between the island of the same name and Malaita. More subdued terrain develops on the interior areas of volcanic rocks, but the surrounding limestones and chalks are crumpled into folds and dissected into jagged ridges following the strike of the folds. Limited areas of coastal plain are developed on alluvial outwash or raised coral reefs.

Few climate records exist in this area, but the luxuriant growth of tropical rainforest covering almost the entire island is ample evidence of rainfall well over 100 inches. Much of the precipitation quickly disappears below the surface in porous limestone areas, however, and stream beds are said to be choked with boulders and even dry except immediately following heavy rains.

It is evident that a large, well-watered island such as Malaita could be expected to support many times the population of the sparse atolls far to the north - and indeed it does. On the other hand crude population density is misleading in an area of rugged and at times barren terrain, particularly when edaphic conditions also may be unfavorable to agriculture. An obvious first requirement toward appreciating the true potentiality of Malaita for support of its inhabitants and for an understanding of

its present and potential problems of land tenure lies in an accurate measurement of the extent, distribution, and quality of arable land.

150°
153°
156°
159°
162°
3°
6°
9°
SOLOMON ISLANDS
New Ireland
New Britain
Bougainville
Choiseul
Santa Isabel
New Georgia
Malaita
Guadalcanal
San Cristóbal
New Guinea

161°00'
161°30'
8°30'
9°00'
9°30'
MALAITA
FAUAMBU SYNCLINE
AUKI
TAKATAKA
Maramasike
TAKATAKA SYNCLINE
MARAMASIKE PASS
Guadalcanal

PROBLEMS OF LAND TENURE ON MALAITA

M. M. Townsend 1/

Malaita is a mountainous island of about 1,500 square miles with a population of just over 50,000. The total area of land available per head is thus some 20 acres: the area of cultivable land is about half the total, however. It is hard to generalize about an island on which there are still eighteen distinct dialects in five main language groups and a considerable diversity of custom, and I should like to emphasize that I am giving a personal account of impressions received as an administrator - an account by someone using a different viewpoint might differ considerably from mine.

For long the highest cohesive social group was a collection of household settlements, the head of each settlement sharing descent in the male line from a common ancestor who was buried in the area. Each group was under the loose leadership of an influential man who in some areas was self-made and in others inherited the position. Land was not owned in the sense that any person or group had freedom to allocate or dispose of it, but each individual of the descent-group had the right to use as much of the ample land accessible from his settlement as he needed - not only for gardening but also for firewood, house-site and wild or cultivated fruit. The fact that an individual cleared land (whether it was then planted with long-living fruit trees or only used briefly for gardens) gave him rights to all it produced until it was finally abandoned. Thus lasting rights could be acquired both to fruit trees and to repeatedly-used garden areas. The rare disputes within descent-groups were settled by the group's 'man of influence', and disputes between descent-groups by force of threat or occasionally by force itself.

1/ In Mr. Townsend's absence his paper was read by Dr. H. H. Aschmann, Dept. of Geography, University of California, Riverside, California.

Until the nineteenth century the Malaitan almost certainly thought of land only in terms of the use it could be put to, and not as something which could itself be owned. Gardens were established (as now) by the "slash and burn" method, with a fallow period of 6-12 years. Most men gathered fruit from trees - for the most part canarium, areca or coconut - which grew wild or which they had planted, but if a tree failed it was unusual for rights to its site to be maintained by re-planting: replacements were usually planted where the land had been cleared within recent years for gardens. Land was ample for all needs: in this connection it is possible that Malaita, which had a relatively thinly-distributed population not easily accessible from the coast, suffered less than many Pacific islands from the introduced 'killers' such as measles and tuberculosis, and that its population density at the beginning of the nineteenth century was probably less than half what it is now. By the second half of the century Europeans and others were starting to visit Malaita with some regularity, and to establish mission and trading stations. The coastal flat lands, hitherto vulnerable to canoe raids and on the whole thinly populated, became attractive to men from the interior, and (usually by arrangement with the original occupiers) many small groups established settlements there.

As the demand for copra increased from 1870 onwards, coconut trees were planted in the coastal areas (which alone were suitable) in groves of unprecedented size, and since suitable land was so restricted descendants of those who planted them saw to it that they continued to exercise their rights over the site of the grove because of the inheritance of the coconut trees upon it. The conception of a defined area being in the perpetual possession of an individual and his successors sprang up.

Further, Europeans made written agreements with Malaitans which purported to transfer land itself, and the European conception of land ownership gradually became apparent. Though the majority of plots alienated in this way were very small (up to about 10 acres) and only one (of a dozen square miles) was of real importance to the people of an area, the fact that the soil itself might be permanently alienated had (and continues to have) enormous impact on the Malaitans, and since the first World War a number of transfers between Malaitans have taken place in which both parties fully intended well-defined areas of land and not merely rights in them to pass.

Thus for forty years or more the number of Malaitans thinking of land as such, as well as of what it could produce, has been increasing. However, until very recently the demand for ownership was very limited, because the demand for money and the area on which the only cash crop (copra) could be produced were themselves limited. During the second World War many Malaitans served with the allied forces and came to appreciate a much wider variety of imported goods, with the result that a large proportion of the people either have graduated, or are in a condition to graduate, to a money economy. In addition the planting of rice and cacao, to provide the largest possible number of peasant farmers with a cash income, was encouraged by the administration, and is now being undertaken on quite a wide scale. While ownership of small groups of trees was recognized in earlier times, and the continued use of cleared land for food crops was acknowledged, a different concept began to develop when land was cleared and used for economic crops such as rice, and economic trees such as coconuts and cocoa in large numbers. Land began to have an economic as well as a subsistence value.

To many Malaitans the traditional system of all the members of a large group holding rights within the same tract is now most unsatisfactory. The young, energetic and ambitious man is unwilling to work, or even to organize the work of a group, in establishing a grazing area for cattle or a new plot of cacao, if the bulk of the proceeds from the sale of produce has to be shared with a score of relatives, some of whom may even have had to be bribed to allow permanent improvement of the land to take place at all. For its part the administration, though impartial, is anxious for the welfare of the Malaitans, and has found that the larger the group undertaking a project the greater the inefficiency and risk of failure: even a well-established coconut grove is likely to suffer if more than an elementary family holds rights to it.

The 1957 report of the Special Lands Commissioner Mr. C. H. Allan recommended that where conditions demand it the evolution of a modern system of tenure by individuals should be encouraged. The term 'individual' in this instance extended to well-defined groups acting through trustees in order that there might be nothing to prevent a traditional group establishing ownership more comprehensive than its original rights provided it could agree on its membership. Legislation now enacted provides for minor rights in an area to be extinguished on payment of fair compensation, for the settlement of disputes, and for the registration of titles. There is however no intention of forcing the pace: the transition will be gradual since claims for registration will be dealt with as they arise. For some time to come most land on Malaita will continue to be subject to the traditional system, though there is little doubt that once claims are being dealt with smoothly and consistently, and the advantages of acquiring individual title are widely apparent, the demand for it will rise progressively.

Of the obstacles to the making and consideration of claims the first is purely physical - the fact that because so much land has been available in relation to the needs of the people it has never been necessary to establish exact limits. The second is more serious - the opposition of some members of a group to any of its members claiming registration of part of its original area which he has developed. The main grounds of objection are likely to be:

(a) that 'custom' should not be changed - there are still many on Malaita who hold that custom is immutable, despite all evidence to the contrary;

(b) that members of the group who are by inclination or through no fault of their own less active will no longer be able to profit from work done by the young and ambitious;

(c) that the group at present cares well for its aged, and that once members are allowed to become wholly independent of the group many of the aged will be left destitute;

(d) that land to which an individual holds title may be sold or mortgaged for the private profit of the title-holder, leaving his family destitute and allowing persons of whom the group does not approve possession of group land.

It is impossible to have much sympathy with those who base their objections on the first two grounds, but the third poses a problem which will have to be faced, and to which the Malaita Council, which has provided valuable advice in the past, may be able to suggest a solution. It is unlikely that the economy will be able within the near future to support any extensive alternative system to provide for the care of the indigent aged.

Objection on the last ground is also valid: in such countries as India and the Gold Coast (now Ghana) the mortgaging and sale of land led to the development of a landless class or a tenancy perpetually in debt to landlords who often behaved oppressively. The alienation of land to non-natives (including leasing) is already strictly controlled by the administration, and it only remains to devise some control over alienation to natives for part of the problem to be solved. As far as pledging land is concerned, the provision of credit is essential to the orderly economic development of the islands, which at present have no major asset other than their land and its produce. Fortunately a statutory body (the Agricultural and Industrial Loans Board) already operates a revolving fund from which loans at a low rate of interest (about 5%) are made. The Loans Board is required as a general rule to take security for its loans, and accepts titles to land, but the interest rate is low enough to enable even moderately efficient projects to pay off the mortgage in the first few years of production, so that it is unlikely that the raising of credit on land which is itself to be developed by means of the loan will lead to its alienation.

FIJI ISLANDS LANDSCAPE

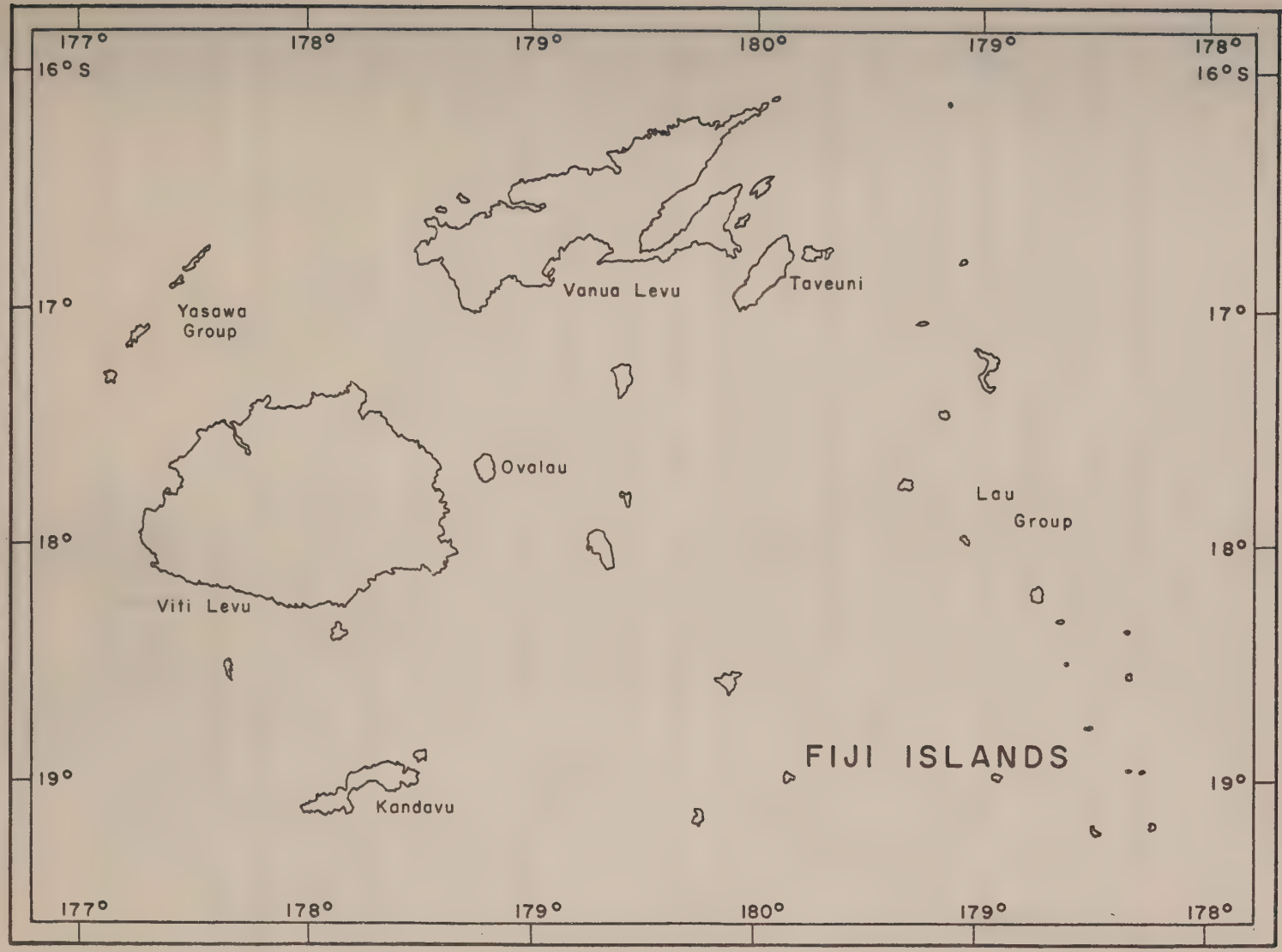
Edwin Doran Jr.

The two large and many smaller Fiji Islands are distributed over an area about 300 miles square and with their large area and rugged terrain are rather similar to the Solomons (Fig. 8). Viti Levu, with dimensions of 60 by 90 miles, is somewhat larger than Guadalcanal and has the same elevated and dissected surface (Fig. 9). Vanua Levu is similar in shape and area to Malaita. The coastal plains which form the most desirable sites for human activity are limited in area to only 11% of the two larger islands, but these are bordered by rather extensive mangrove swamps which are possibly reclaimable. Coral reefs fringe most coastlines and are strewn in profusion among the islands.

Although adequate climatic data are not available in the Solomon Islands it is evident from a comparison of vegetation that Fiji is somewhat less rainy. Considerable areas in the west and northwest of both Viti Levu and Vanua Levu receive less than 70 inches per year. It is probable that few if any areas in the larger Solomon Islands receive so little. The eastern and higher parts of Fiji, of course, have rainfall averages over 100 inches in most places, and Suva once recorded 37 inches falling during a 13-hour storm. The lower quantities in the western parts of the large islands and a marked dry season are notable assets since these also are requirements for growing sugar cane, by far the most important contribution to Fijian economy.

The distribution of precipitation is closely mirrored in the distribution of vegetation with marked contrasts between the dense and luxuriant rainforest of eastern Viti Levu and the grassy hills and fields of sugar cane in the western part of the island.

The approximate equivalence in numbers between native Fijians and the descendants of indentured Indian laborers is well known. Dominance of sugar cane agriculture by the latter, while land is owned for the most part by communal groups of the former has long been a difficult situation. Problems arising from these relationships are examined in the discourse which follows.


177°
178°
179°
180°
179°
178°
16° S
17°
18°
19°
Vanua Levu
Taveuni
Yasawa
Group
Ovalau
Lau
Group
Viti Levu
FIJI ISLANDS
Kandavu

177°30'
178°00'
178°30'
17°30'
18°00'
18°30'
Waya
Waya Lailai
Kowata
Vomo
Tokoriki
Tavua
Mana
Malolo
Nananu-I-Ra
Nananu-I-Thake
PENANG
TAVUA
MBA
NANDARIVATU
LAUTOKA
NANDI
Naingani
Ovalau
Moturiki
KOROVOU
NAUSORI
SUVA
NAVUA
SINGATOKA
70"
70"
VITI LEVU
Mbengga

LAND IN FIJI

R. H. Regnault[1/]

The Fiji Group consisting of some 300 islands lies mainly between the 16th and 20th parallels of southern latitude. It is confined between meridians 177E and 178W; the 180th meridian passing through the islands of Vanua Levu and Taveuni. The group covers an area of approximately 60,000 square miles and its own land mass is 7,055 square miles in extent. The two main islands, Viti Levu and Vanua Levu cover 4,011 square miles and 2,137 square miles respectively. Suva the capital city and center of Goverement is situated on the south east coast of Viti Levu and is 1969 miles from Sydney, and 3163 miles from Honolulu.

Viti Levu, Vanua Levu and islands near their shores are mainly of geologically recent volcanic origin. The hinterlands are of a broken nature with rugged mountain ranges rising in the centre. In the case of Viti Levu the highest point is over 4,300 feet. The islands of the Lau Group, some 200 miles east of Suva, provide a marked contrast being of limestone formation and of low relief.

To the east of the 180th meridian is Polynesia, to the west Melanesia. Fiji stands at the ethnic and geographic cross roads and the present day customs and characteristics of the indigenous Fijian reflect influences from both origins. One of the problems of the Administration today is to bring about a climate of opinion amongst Fijians to allow for greater freedom for individual action in terms of a materialistic twentieth century cash economy.

1/ Paper read for Mr. Regnault by Dr. F. H. Bauer, Dept. of Geography, San Diego State College, San Diego, California

Because of the conditions prevailing in the early 1870's Fijian Chiefs appealed to Great Britain to bring order out of chaos. On 10th October 1874 an unconditional Deed of Cession was signed and Fiji proclaimed a British possession. The unconditional vesting in the Crown of all land not the bona fide property of Europeans and not in actual use or occupation by Fijians at the time of execution of the "Deed" has been argued from that day hence. However, British policy over the years has given prescriptive validity to the principle of the inviolability of Fijian Lands.

Claims to ownership of land by Europeans and others who had entered into dealings with Fijians prior to cession were decided by a Land Claims Commission which operated between 1875 and 1900. The findings of this Commission established the bulk of present day freehold land.

The Real Property Ordinance of 1876 was enacted to control freehold land dealings. In it were provisions precluding the acceptance of any plan of land by the Registrar of Titles or by any court in the Colony if such were not endorsed by a registered surveyor. In 1877 an Ordinance to provide for the registration of Surveyors was passed. These Ordinances had far reaching effects and have been primarily responsible for the excellence of the Colony's map and plan coverage - said to be superior to that of most other countries in a comparable stage of development.

In 1880 a Native Lands Commission was set up to ascertain and define 'Mataqali' boundaries; the Mataqali being the recognized Fijian land-holding unit. It is a division of a larger social unit, the Yavusa, which in turn approximates to something between a tribe and a clan claiming descent from a common ancestor. The work of the Commission has

continued to the present time and now nearly all Mataqali ownerships have been surveyed and recorded. In late years the work of the Commission has been mainly directed to investigating and making recommendations in respect of Native land to be reserved within Mataqali holdings for exclusive Fijian use.

There are some 5,127 Mataqali (average membership 29 persons) in Fiji and they own 3,776,000 acres or 83.6% of the land in the Colony. Unalienated Fijian land is used according to custom and agricultural activity (mainly for subsistence purposes) is usually on a shifting cultivation basis. However, it must be borne in mind that nearly half of the Colony is considered unsuited for agriculture, orchard crops, grazing or productive forest.

The Colonial Office policy of preserving the customary Fijian way of life in the early days led to a shortage of paid labour and brought about the introduction of imported labour to work the plantations. Labour was firstly imported from Melanesia and secondly when that source dried up, from India. In 1879 the first shipload of Indian indentured labour arrived in Fiji. Indian labour continued to arrive in Fiji until 1916 when the indenture system ceased. Few Indians took advantage of repatriation at the termination of their contracts. These labourers were followed by Indian shopkeepers and merchants. All have multiplied accordingly and so it is today that Indians form the greatest percentage of the population.

Fiji is a multi-racial agricultural Colony whose economy is largely dependent on the production of copra, sugar and gold. In 1956 agriculture was the main occupation of 58.9% of the total occupied population.

Fiji's population at 1961 is estimated at 410,263 (171,248 Fijians, 206,819 Indians, 32,196 others - Europeans, part Europeans, Rotumans and other Pacific Islanders) and is expected to increase to 583,859 by 1971. Of the total land area of the Colony, i.e. 4,514,438 acres, Fijians hold 83.6% in customary terms and .2% in registered freehold ownership. Other freeholders are Indians 1.7%, Europeans and part Europeans 5.5%, Colonial Sugar Refining Company 1.7%, Chinese and other .7%, whilst Rotumans hold .2% in customary tenure. The balance of 6.4% is in Crown ownership.

Indian holdings are increased by way of leasing 230,000 acres from Fijians, 40,000 acres from the Crown, 50,000 acres from the Colonial Sugar Refining Co. and 30,000 acres from other freeholders. It should be noted that some 63% of the leased land is situated in the fertile and financially rewarding cane growing areas.

Equating the 1961 population figures with the following land use categories

(i) Agricultural land

(ii) Agricultural land requiring modest improvement

(iii) Land requiring major improvements

(iv) Land unsuited for permanent agriculture

we find that the acreage per capita works out at 1.76, 0.95, 2.90, 3.4 acres respectively. This is somewhat of an over simplification as it disregards, amongst other matters, Fijian ownership of 83.6% of the land in the Colony.

Whilst I have no figures with which to make similar comparisons with other Pacific territories, the following population/density figures are interesting:

Population

Fiji (1958)	-	374,284	- 53 persons per sq. mile	) very approxi-
New Caledonia (1957)	-	70,747	- 10.1 " " " "	) mately the same
New Hebrides (1956)	-	48,725	- 8.5 " " " "	) area.
Kingdom of Tonga (1956)	-	58,000	232 " " " "	

Freehold land comprising as it does some 10% of the Colony is held by registered proprietors in fee simple. It can be bought, sold, mortgaged, pledged and subdivided (subject to subdivision of land and town planning considerations). There are no moral or customary restrictions on its use other than those placed on it by the individual owner himself. The Colonial Sugar Refining Co. is the largest single freehold owner and it leases out most of its lands.

Crown land is divided broadly into 4 categories:-

(a) Crownland with or without title. This is land which has come to the Crown by way of Native Grant, purchase or acquisition and totals some 85,424 acres.

(b) Crown Schedule 'A' land is that which falls to the Crown as 'ultimus haeres' on the extinction of a Mataqali and amounts to 120,000 acres.

(c) Crown Schedule 'B' land is that for which no claim was made to the 1880 Native Land Commission and accounts for approximately 88,000 acres of the poorer lands.

(d) Large areas of Crown foreshore covered in mangrove which is potentially reclaimable.

Rents from Crown land in categories (a), (b), and (d) are paid into the Colony's general revenue. Rents from Crown Schedule 'B' lands less 10% are paid to a special fund controlled by the Fijian Affairs Board for the benefit of Fijians.

Only in exceptional cases is it possible to dispose of the freehold of Crown land. Practically all alienation of Crown land is done by way of lease.

Crown leases are exceptionally popular and in many cases seem to be preferred to freehold tenure. This is hard to understand as these leases are circumscribed by numerous conditions and failure to honour them can lead to cancellation. However, rentals are modest, seldom exceeding 4% of the unimproved capital value of the land.

The Crown undertakes the provision of basic survey work for all lands in the Colony and every lot whether surveyed for residential, agricultural or any other purpose is itself connected to the basic survey system.

Most urban development has been undertaken by the Crown and nearly all towns and townships in the Colony (especially Suva) have been laid out as a result of Crown initiative. However, Crown land available for development in both urban and rural areas is now limited.

No Fijian land may be sold except to the Crown. The leasing of Fijian lands outside Reserves is controlled by the Native Lands Trust Board - a body set up under a special Ordinance with a Fijian majority divorced from Central Government agency. The leases issued by the Board contain clauses similar to the covenants of Crown leases. Finance to operate the Board's activities is obtained by diverting 25% of all rents and royalties received to the Board's revenue. Of the balance some 30% is distributed to high ranking members of the social units involved, leaving some 45% for distribution to the rank and file of the Mataqali.

In 1959 a Commission under the Chairmanship of Sir Alan Burns was appointed to enquire into the natural resources and population trends of the Colony. The Commission carried out an exhaustive investigation and

published its findings and recommendations in a comprehensive report.[1] The Commission emphasized the impossibility of ignoring the Fijians' right to the ownership of all land other than Crown and freehold and re-affirmed that the Mataqali should continue to be the land owning unit. It also recommended that Mataqalis should be registered as corporate bodies to enable them to pledge their lands as security for loan purposes. This recommendation was not accepted by the Legislature nor was the recommendation to tax inadequately used land.

However, the Legislature has now indicated its acceptance of recommendations to implement landlord and tenant legislation, to increase the terms of agricultural leases to 60 and 99 years and to accelerate the demarcation of Native Reserves.

There is a growing awareness amongst Fijians of the advantages to be gained by the independent farmer and Government has supported the Burns Commission recommendation that this type of farmer should be encouraged. Despite the difficulties both practical and psychological, numbers of Fijians have made the break and are established as individual farmers on their own land. In these cases subsistence shifting cultivation has given way to up-to-date methods of husbandry and there are successful Fijian cane and dairy farmers in different parts of the Colony.

With the settlement of Fijian Reserve claims in sight it is hoped that land not so claimed will become more readily available for settlement. With new avenues for obtaining finance soon to be available in the Colony, it is expected that Fiji's agricultural economy will develop on a diversified farming basis and that more land to accommodate an expanding population will be made available on reasonable terms.

1/ Fiji, Legislative Council. Report of the Commission of Enquiry into the Natural Resources and Population Trends of the Colony of Fiji, 1959. [Suva], 1960. 154 pages, Maps. (Council paper no. 1 of 1960).

TONGA ISLANDS LANDSCAPE

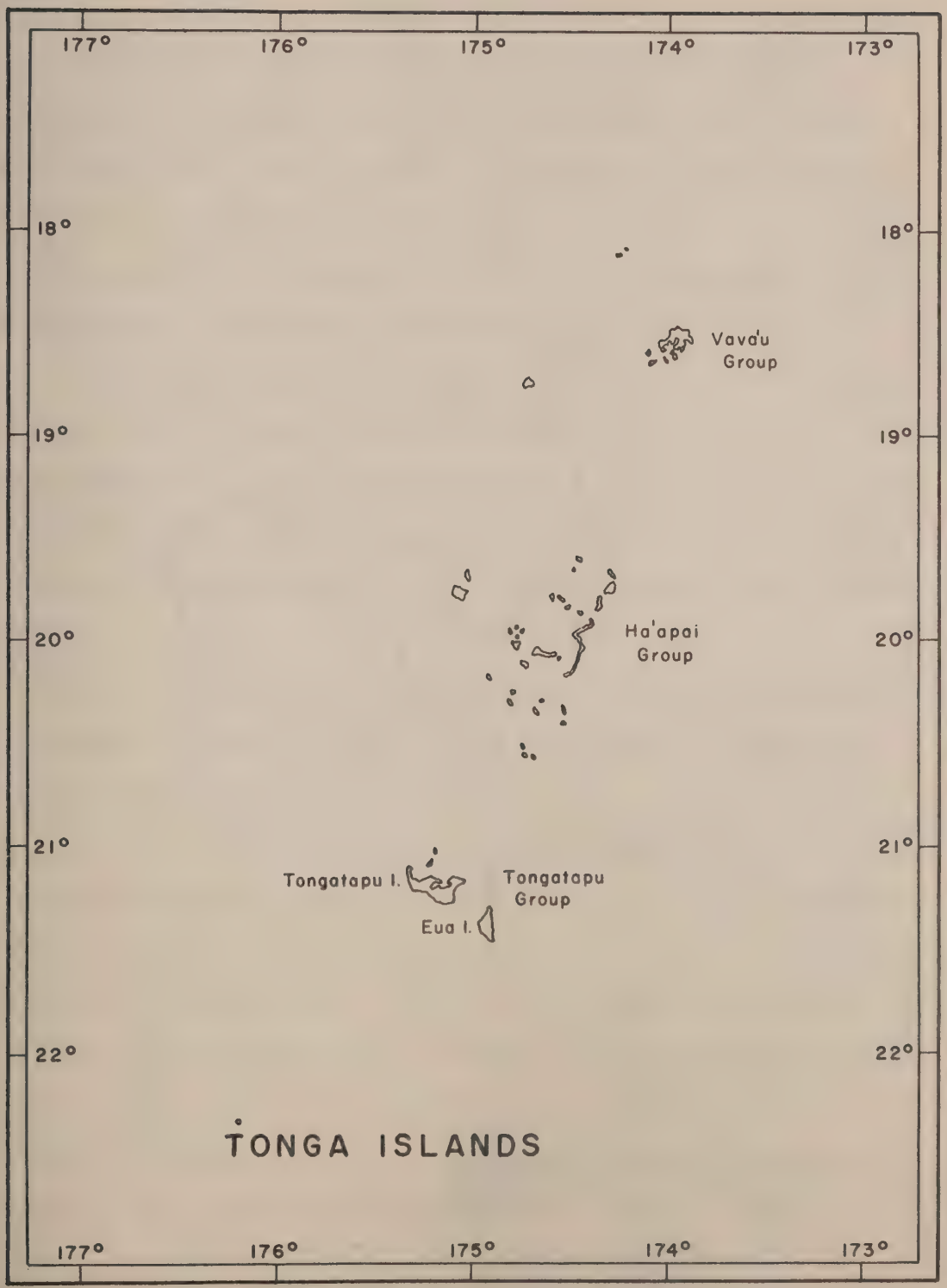
Edwin Doran Jr.

Tongatapu Island, largest of the group and seat of government, has dimensions of 9 by 18 miles and an area of about 90 square miles (Figs. 10, 11). It is representative of the easterly chain of Tongan islands which are relatively low and very largely formed of limestone, in contrast to the several active volcanic islands to westward. Southeastern Tongatapu reaches a maximum elevation of 270 feet, with precipitous coastal cliffs close at hand. From this eminence the island slopes gently northwestward. Nuku'alofa, the capital and principal city, lies on the north coast where indentations and a maze of reefs provide excellent protection for shipping.

Temperatures in Tonga are equable and pleasant, with easterly winds during much of the year. Rainfall at Nuku'alofa averages 63 inches per year and is quite dependable. Typhoons at irregular intervals are the principal interruption in a rather even climatic tenor.

Coconut palms are widely diffused and a principal aspect of vegetation, although pandanus, hibiscus, and other typical Pacific island plants are also present. Considerable portions of the island have been cleared, are used for truck crops, or may have reverted to grass or scrub.

With its unique system of government and landholding Tonga presents a most interesting facet of landholding patterns in the Pacific.


177°
176°
175°
174°
173°
18°
19°
20°
21°
22°
Vava'u Group
Ha'apai Group
Tongatapu I.
Tongatapu Group
Eua I.
TONGA ISLANDS

175°20'
175°10'
175°00'
21°00'
21°10'
NUKUʻALOFA
TONGATAPU

LAND TENURE IN TONGA

Q. F. Pilling 1/

The land tenure system in Tonga is a unique one, and may be considered most admirably suited to a country whose economy is based on an agricultural system operated at family level, a system where the small holder and the family group are the backbone.

To understand this one must have a knowledge of the system of rule established under the Monarch, Her Majesty Queen Salote Tupou.

Tonga is a protected state of the United Kingdom and is ruled independently under a constitutional monarchy established in 1862. The first King, George Tupou I, by strength of character and of arm, established suzerainty over Tonga and unified what had until this time been a loose alliance of a number of islands in the Tonga Group under several accepted chiefs.

With unified rule came the establishment of constitutional government modeled in miniature on that of the British Crown and Government. This has served Tonga well.

It is worth noting that there was little foreign influence on land holdings since at this stage Tonga had been open only to the educational influences of the various missions and passing New Zealand whaling fleets using the harbours for shelter and watering. It was now possible to establish the Land Control of Tonga without outside influence affecting the issue. This was done with admirable success in the framing of the Land Act, the original of which, with few amendments, has remained the charter for Land tenure of Tonga to the present day.

1/ In Mr. Pilling's absence his paper was read by Dr. Crocombe in addition to his own concluding paper.

Thus Land Tenure in Tonga is built on the concept that all land throughout the country is regarded as the property of the Crown and there is no freeholding whatsoever.

The land is divided out in 'Tofia' which are hereditary estates and, within broad limits, approximate the spheres of influence of the Chiefs before unification. There are also royal estates and government estates. From these all parties draw a nominal percentage of the poll tax of 32 shillings per year paid by each Tongan male of 16 years or over. Though these estates, of which there are just over 30, are nominally owned by the royal family, various holders of chiefly titles, and the government, nevertheless control of the land and its allocation lies with Government under the Land Act and is administered by the Cabinet of Tonga through the agency of the Minister of lands and his department.

With this picture in mind we can follow the pattern as it affects the individual and the family.

During his lifetime a poll tax payer is entitled under the Act to two statutory areas of land, 8 1/4 acres of bush land for farming and 1 rood, 24 perches as a town allotment, usually in the nearest village to his bush land. I have said "during his life time." However, in practice the law of inheritance and provision for the devolution of these allotments provides for the holder's widow to receive a lifetime interest in his bush lands when he dies. In addition the eldest son of the family normally remains with the family to assist in working his father's land and on his father's death is eventually issued the allotments. Younger brothers apply for and are granted allotment in other areas for themsleves and their families. One might conclude that the area will eventually become saturated with no more land available, and this is the case. However, the full survey of Tonga and land division

into these statutory areas is not yet complete. It is at present in the process by a contract survey of the Kingdom undertaken by a New Zealand Survey organization. It would appear that a "pressure of population on land problem" should not eventuate for some time yet.

I have mentioned that one of the happy features of land tenure in Tonga is the absence of alienation of land to foreign influences. This has been achieved by permitting only leasehold occupation of land by non-Tongans, and consequently there have been no difficulties arising through clashes of interests. This system possibly has had a retarding effect on commercial interests, importers, and business houses as there always exists an uncertainty among the business community concerning renewal of their leases. Consequently a retarding influence on building in the two main town areas of the Kingdom, the capital, Nuku'alofa, and the centre of the northern group of islands at Neiafu in Vava'u, is apparent. Originally large areas of Tongatapu, the main island in the kingdom, were leased to foreigners as coconut plantations for the production of copra. When these leases fall due and are required they can revert to the noble on whose estate they lie and are then available for sub-division and issue as tax allotments to the Tongan people. This is now happening but without any unrest or political difficulties since the terms of lease have always been understood and respected.

This I think gives a picture of the general charter or pattern of land tenure.

Now it would be appropriate to deal with actual land utilization by the individual allotment holder, who is essentially a small farmer, growing cash and food crops. The production for overseas markets is limited to copra (the main export), bananas, watermelons and pineapples. Ideally

the allotment is fully planted out in copra at 48 trees per acre giving a return of approximately half a ton per acre. Beneath the trees the farmer may grow his banana and pineapple crop for cash return. In separate patches he produces ground foods for home consumption - yam, sweet potato (kumala), manioca, and dalo. In a fallow area of the plantation he may keep a cow for providing milk for his family, and perhaps a few pigs and fowls. The latter more often than not are kept in town.

The Tongan land holder normally resides on his town allotment and journeys daily by horse or cart to his farm land, often with his family and some relations if he has a planting program for which he requires assistance. Naturally on the larger islands such as Tongatapu this may mean a journey of some miles from the home village. This is achieved by horse and cart or by motor lorry from the home village. Families with several adult sons may find that allotments issued to them are scattered some distance apart but generally an endeavour is made to keep the families in their own districts if possible and if desired.

A localized form of share-cropping also exists which has grown out of the tax allotment system. This has come about through many of the better educated people obtaining wage- or salary-earning jobs as civil servants, shop or office employees. The result is that relations or friends undertake to work their bush allotments or <u>apis</u> on a share basis. This means that the employed person receives a return from his allotment in ground foods and also a cash return on his copra as well as the cash he receives from his job. He can thus place himself in an enviable economic position in the community.

This then gives a basic impression of a type of land occupancy peculiarly suited to an island group where extensive tracts of land are not available for large scale commercial farming. In this context

success lies in production of small cash crops by small independent farmers for whom further financial and economic development lies in the increased quantity, quality and variety of such crops for export.

For this end the Land Tenure System of the Kingdom is ideally situated and administered for the indigenous people of Tonga.

COOK ISLANDS LANDSCAPE

Edwin Doran Jr.

The Southern Cook Islands are intermediate in character between the large, high, and rainy Fiji and Solomon Islands and the tiny, low, and sparse atolls of the Gilberts and Marshalls (Fig. 12). The areas of Aitutaki and Rarotonga, for example, are respectively 6 and 26 square miles. If the entire group is considered we find an interesting transition which not only presents a miniature cross-section of the types of topography to be found in the Pacific but as well illustrates the sequence of configurations to be expected with the Darwinian hypothesis of atoll formation through subsidence.

On the south Rarotonga consists consists principally of a massive core of igneous rock surrounded by a narrow fringing reef of coral (Fig. 13). This intensively dissected volcanic remnant extends upward in jagged ridges and spires to elevations over 2000 feet, the whole engirdled by a narrow coastal plain and reef. Aitutaki represents a second stage in which the old volcano has subsided while coral has grown up and out to form a barrier reef encircling a lagoon (Fig. 14). The maximum elevation is a modest 450 feet, and the rounded summit with its thick cover of reddish soil bears witness to a long period of weathering and denudation. The third stage, with the presumed volcanic core long vanished below the sea, is shown by Tongareva, a typical atoll (Fig. 15). All that remains is a thin annulus between lagoon and ocean.

Although variability in the 60 inches of precipitation averaged at Aitutaki occasionally produces drought years with as few as 30 inches the general aspect is one of adequate rain; Rarotonga does not vary markedly from its annual average of about 80 inches. Totals greater than these

are to be found in the Northern Gilberts and Southern Marshalls, but the means for those groups taken together are not only lower but much more variable as well. The high Melanesian islands, on the contrary, average considerably more. Vegetation in the Cook Islands, in terms of luxuriance and number of species, also falls into an intermediate position.

The crude population density of the Cook Islands, 85 persons per square mile, may be contrasted with figures well into the hundreds on the atolls and below 50 for the large islands. Although this density gives rise to some pressure it is not extreme, and people support themselves rather comfortably by an economy based on subsistence fishing and agriculture. The coconuts found everywhere along coastlines are utilized by all, from dignified village leaders to truants evading school. As through most of the Pacific taro is a staple which may be varied when breadfruit is in season. The physical environment, then, is one which has offered optimum conditions for development of a typical Polynesian culture.

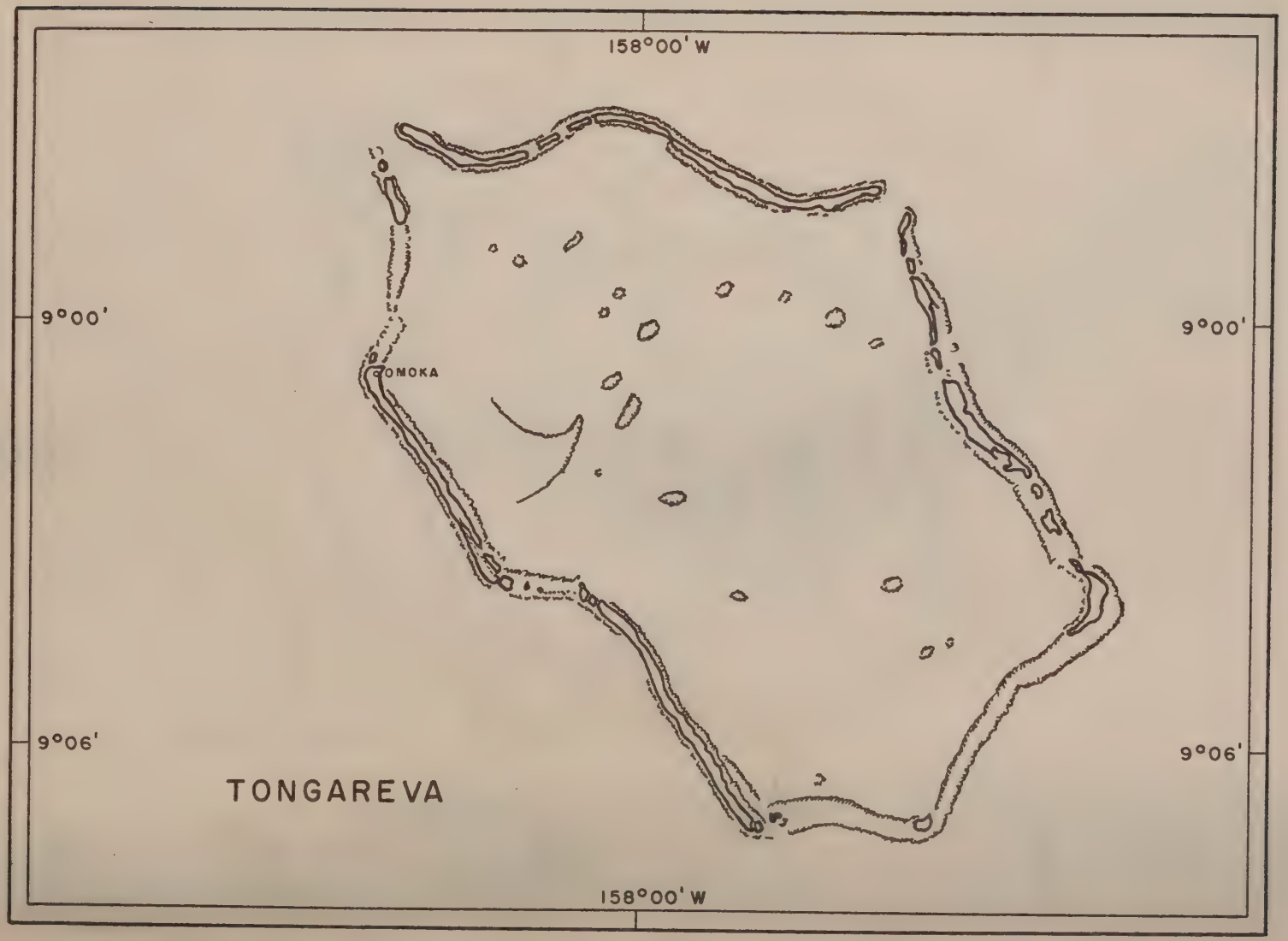
One brief comparative note on the inter-relationships between physical landscape and population density may be cited. Where population pressures exist and where the landscape changes in character as one passes from fringing reef into the land to either interior lagoon or mountains islanders recognize the necessity of distributing the land in such fashion that all persons have access to all types of terrain. The radial pattern of land-holdings from the island center results from this recognition. The pie-shaped tapere of Rarotonga and the cross-islet weto of the Marshalls are certainly analogous shapes. They document an implicit recognition on the part of both Marshall Islanders and Cook

Islanders of a controlling geometry within which their respective land tenure patterns had to be developed. No such control obtains in the Solomons where the larger limits of landholdings are only roughly dictated by topography and the small square or rectangular plots under cultivation have little relation to the major aspects of island form.

160°
159°
158°
18°
19°
20°
21°
22°
Aitutaki
Hervey
Takatea
Mitiaro
Atiu
Mauke
Rarotonga
Mangaia
COOK ISLANDS

159°50'
159°45'
21°10'
21°10'
AVATIU
AVARUA
21°15'
21°15'
RAROTONGA
159°50'
159°45'

159°46' W
18°50'
18°50'
ARUTUNGA
18°55'
18°55'
AITUTAKI
19°00'
159°46' W
19°00'


158°00' W
9°00'
9°00'
OMOKA
9°06'
9°06'
TONGAREVA
158°00' W

LAND TENURE IN THE COOK ISLANDS[1/]

R. G. Crocombe

As in other parts of Polynesia, the indigenous land tenure system of the Cook Islands was intimately related to its social organization - so much so that a knowledge of the social system is an essential prerequisite to the understanding of the system of land tenure.

The social system was segmentary in structure and had a strong patrilineal bias. Each minimal segment consisted of a single household headed by an elder (metua). It was joined with other related households to form a minor lineage under a subchief (rangatira or komono) - that elder among them who was senior by descent. Related and contiguous minor lineages were in turn connected to form a major lineage under the headship of a chief (mataiapo) - ideally the "first-born of the first-born" from the lineage founder. Finally major lineages were united for certain purposes under the leadership of the high chief (ariki), whose rank was paramount and whose descent was traced from the gods. Particular land rights lay with the respective groups at the various levels of segmentation.

Land rights held at the tribal level were relatively few. In peacetime there was a right of access throughout the tribal territory, provided known pathways were used and the activities were legitimate. The high chief, as head of the tribe, could impose a customary prohibition (ra'ui) on the use of particular produce throughout the tribal area in

1/ The atolls of the Northern Cook Group, which account for 14% of the total land area and 15% of the population of the whole Group, have tenure systems which differ in some significant details from those of the rest of the Group and have been omitted from this analysis.

order to conserve it for a time of shortage or a forthcoming feast. He could require that foodstuffs from tribal lands be provided for certain tribal ceremonies. Some lands belonged to the tribe as a whole and were the special responsibility of its high chief. These were the meeting places (koutu) of the tribe, and its religious centre (marae).

Each major lineage occupied a block of land known as a tapere. The tapere was almost invariably wedge-shaped - the boundaries beginning as defined points on the outer reef and running inland to enclose an ever-narrowing strip of land until they converged at a point in or near the centre of the island. As a result of this pattern of division and of the generally uniform topography of the islands, each major lineage had access to every category of soil type and land surface that the island had to offer - from the (usually) mountainous interior where forest products were collected, through the fertile valleys where the major food crops were grown, across the rocky coastal strip (makatea), to the ubiquitous lagoon and fringing reef.

In most instances the occupying major lineage was divided into several minor lineages, and the various lands were subdivided among them. Once so allocated the rights of the major lineage were limited to three - a symbolic right to regard the whole tapere as its own, the right of reversion in the event of any minor lineage becoming extinct, and the right to participate in deliberations involving the tapere lands as a whole. The lands were allocated among the minor lineages in such a way as to ensure that each had an adequate share of all the major categories of land and was thus virtually self-sufficient in so far as subsistence was concerned. While the lagoon waters were usually not divided within the major lineages, particular minor lineages had exclusive rights to fish weirs which they had constructed. Within each minor

lineage there were further subdivisions among the various branches (kiato) and within the component households (kainga tangata) of each of them. The whole of the lands were not so divided, but generally only the taro swamps, cropping lands, and areas planted with the more valuable trees.

The rights of any individual in the lands of any group were dependent on his membership of or relationship to that group, and his social status within it. An individual's connection with any particular portion of land and with the minor lineage or segment of it to which that land was allocated fell into one of the following four categories.

Firstly, there were the rights of persons who lived in a lineage and derived their right directly from some other person (usually their father) who also belonged to that lineage. These we will refer to as primary members of the lineage. Primary members held primary rights to the land - i.e. they could plant and harvest as of right.

Secondly, there were the rights of persons who had been primary members of a lineage but had subsequently (usually in the event of marriage) left to join another lineage. Their connection with their lineage of orientation was still recognized on certain occasions (particularly in the event of feasts in connection with life crises) and they could return to that lineage if due to death of the spouse or other misfortune they wished to do so. Sometimes when a high-ranking woman married out, her lineage set aside a special portion of land for her personal use, but with this exception, her right to actively use the lands of her born lineage was contingent on her return there or on their express permission. The same applied to a man who married uxorilocally. Such persons will be referred to as contingent members of the lineage, and their rights to the lineage lands will be referred to as contingent rights.

Thirdly, there were the rights of the children of contingent members of the lineage. Such children had the right to participate in certain activities in the lineage of that parent, and could expect support and assistance from them in times of crisis. Adoption was very common, and the most common direction of adoption was back to the lineage of that parent who had shifted her (or his) residence at the time of marriage.[1/] We shall refer to such persons as secondary members of the lineage concerned, and will speak of their rights to its land as potential rights, for while it was generally accepted that they would be admitted to that lineage if they wished to join it, and could thereby gain primary membership of it, they did not under normal circumstances plant there while residing in another lineage. To a lesser degree, the children of secondary members of a lineage were themselves secondary members, and they also had a potential, but markedly weaker, right to the land. They will be referred to as distant secondary members. In the event of dire necessity there was no limit to the lengths one could trace secondary affiliations of this sort, but in practice they were seldom revived to the extent of exercising land rights.

Fourthly, there were rights of persons who resided in a lineage but were not primary members of it. Most significant, of course, were the wives of primary members, whose connection with the lineage was conditional on the continuation of the marriage, or the approval of the lineage if the other spouse died. Also there were in some cases refugees, captives, or others who resided with the lineage but who had no close kinship connection with it. These persons will be grouped together as

1/ If adopted back one thereupon usually became a primary member of the lineage of adoption.

permissive members of the lineage, as persons holding permissive rights to its lands. Such rights could not be transmitted and their maximum duration was accordingly the life-time of the holder.

The advent of the Europeans resulted in major demographic and social adjustments. With the exception of the fact that women came to be accepted as title-holders, there were no significant changes in land custom, though there were marked changes in the relative incidence of particular means of acquiring land rights. Largely by a process of uxorilocal marriages the port lineages became larger and those in the more isolated villages became relatively smaller. By the process of reversion, the rights of groups which died out in the epidemics fell to the holders of the higher titles who thus accumulated relatively large tracts. By encouraging uxorilocal marriages to their women, and judicious virilocal marriages with their men, the high chiefs were often able to acquire sundry junior titles and consequently the lands that went with them. The relative power of the high chiefs over the land was thereby enhanced and was reflected in increased demands for tribute from the lower social orders. There was some leasing of vacant land by the high chiefs to Europeans, but both the indigenous people and the mission opposed foreign settlement and permanent alienation was prohibited throughout.

In 1901 the Cook Islands were annexed to New Zealand. The New Zealand Government established a Land Court on the lines of the New Zealand Maori Land Court with the aim of making such lands as were not actively used by the islanders available for European settlement and increasing production from the lands used by islanders by individualizing title and "freeing" the commoners from the control of the chiefs. The former ambition was never realized and by 1910 that part of the policy

had been abandoned. The Land Court set about investigating title to the various lands, but due to there having been long periods without any judge, only about half the total land area of the group has been investigated to date. Owing to a misunderstanding by the Court of the significance of lineage affiliation in determining ownership of and succession to land rights, it awards title to all the children of a previous owner with the result that excessive fragmentation of title has occurred. Moreover, as equal rights are thus awarded to persons who are not primary members of the lineages concerned, and as the social status of the leaders of the various segments is not recognized by the Court in relation to land rights, there is no effective leadership of these rapidly increasing and heterogeneous groups of "owners" of each section. As may be expected, the work of the Land Court has not resulted in the increased per capita output of primary produce which had been hoped for.

In 1946 a scheme was introduced whereby a co-owner could be granted exclusive rights of occupation to a particular portion of the lands in which he held rights, for the purpose of planting long-term cash crops. Unlike the earlier changes in the tenure system which were imposed without consultation, this change was brought about after considerable discussion with indigenous leaders. At the time of its introduction it was supplemented by a scheme of agricultural credit together with technical equipment, skilled personnel and organized marketing facilities. This innovation has resulted in land under the scheme being the most intensively and productively used in the group, and while it takes up less than one per cent of the land area of the group, production from it now constitutes the largest single source of primary income and brings in approximately fifty per cent of the total income from agricultural production. The success of this scheme and the method of its introduction and implementation provides a pointer to the pattern of future agrarian reform in the Cook Islands.